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EXAMINER
NGUYEN, HAI V

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/087,055	CHOO, KIAM
	Examiner	Art Unit	
	Hai V. Nguyen	2142	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2005*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-16,20-24,27-40 and 44-48* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-16,20-24,27-40 and 44-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the communication received on 28

September 2005.

2.   Claims 6, 17-19, 25-26, and 41-43 are cancelled

3.   Claims 1-5, 7-16, 20-24, 27-40, and 44-48 are presented for examination.

Response to Arguments

4.   Applicant's arguments and amendments received on 28 September 2005 have

been fully considered but they are not deemed fully persuasive. Applicant's arguments

are deemed moot in view of the following new ground(s) of rejection as explained here

below, necessitated by Applicant's substantial amendment (i.e., in independent claims

1, 12, 20, 36) to the claims which significantly affected the scope thereof.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

6.   Claim 1 is rejected under 35 U.S.C. 112, first paragraph, because the

specification, while being enabling for *(When a host h accesses replicate k, it specifies*

how many times r it has been redirected. k then runs the algorithm as illustrated as flow

chart in Fig. 4 (page 4, paragraphs [0045]-[0046])) does not reasonably provide

enablement for *(...and said host has not been redirected more than a predetermined*

number of times in claims 1, 27). The specification does not enable any person skilled in

the art to which it pertains, or with which it is most nearly connected, to make and use

the invention commensurate in scope with these claims. Even though in Applicant's specification, it enables that *(when a host h accesses replicate k, it specifies how many times r it has been redirected. k then runs the algorithm as illustrated as flow chart in Fig. 4 (page 4, paragraphs [0045]-[0046])* but Applicant's specification does not enable *(how does the host determine or specify a predetermined number of times that the host has been redirected?)*, which is claimed in the claim language.

Additionally, in Applicant's remark received on 28 September 2005, on page 18, Applicant pointed out that, *"the replication takes place if the load on the symbiont exceeds a threshold l_{max} and if the request has been redirected more than a specific number of times, r_{max}"*. It is clearly that this remark is not supported in the specification or as claimed.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8.   Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9.   Claim 1 recites the limitation "replicating said resource on said host, if the load on said symbiont is more than the threshold, lmax, and the load on all symbionts encapsulating said resource, is more than a threshold, t; replicating said resource on said host, if the load on said symbiont is more than the threshold, lmax, and said host has been redirected more than a predetermined number of times; and redirecting said

request to the replicate if the load on said symbiont is more than the threshold, lmax,

and at least one of the symbionts encapsulating said resource has a load less than the

threshold, t, and said host has not been redirected more than a predetermined number

of times " in claim 1. There is insufficient antecedent basis for this limitation in the

claim.

Claim Rejections - 35 USC § 102

10.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e)

that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11.   Claims 1-5, 7-16, 20-24, 27-40, and 44-48 are rejected under 35 U.S.C. 102(e)

as being anticipated by **Abrams** et al. U.S. patent application publication #

2002/0166117 A1.

12.   As to claim 1, Abrams teaches substantially the invention as claimed, including a

method for handling a request for a resource *(request for an instance of application)*,

said request being made by applications *(application stack)* running on a computer *(Fig.

13, a server 354)*, the computer being part of a network of computers, each computer

on said network comprising a host program *(Fig. 13, an edge point 350)*, each said host

program comprising symbionts *(Fig. 13, items 220a-f)*, said symbionts encapsulating

resources, said method comprising the steps of:

a. said host program receiving said request for said resource from said applications

(Fig. 13, page 8, paragraphs [0073]-[0077]);

b. said host program contacting a symbiont that encapsulates said resource *(Fig. 13,*

page 8, paragraphs [0073]-[0077]); and

c. said symbiont performing one of the steps of:

 i/ serving said request if the load on said symbiont is less than a threshold, I_{max}

(Figs. 13-15, page 8, paragraph [0073] – page 10, paragraph [0087]);

 ii/ replicating said resource on said host, if the load on said symbiont is more than

the threshold, I_{max}, and the load on all symbionts encapsulating said resource, is more

than a threshold, t, *(Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 8,*

paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119];

pages 15-16, paragraphs [0136]-[0141]);

 iii/ replicating said resource on said host, if the load on said symbiont is more than

the threshold, I_{max}, and said host has been redirected more than a predetermined

number of times *(Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 8,*

paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119];

pages 15-16, paragraphs [0136]-[0141]); and

 iv/ redirecting said request to the replicate if the load on said symbiont is more than

the threshold, I_{max}, and at least one of the symbionts encapsulating said resource has a

load less than the threshold, t, and said host has not been redirected more than a

predetermined number of times *(Figs. 13-15, pages 2-3, paragraphs [0019]-[000024];*

page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141]).

13.   As to claim 2, Abrams teaches, wherein said host program exposes one or more symbionts available on said network to said applications running on said computer *(Fig. 13, pages 2-3, paragraphs [0019]-[000024]; page 8, paragraphs [0073]-[0077]).*

14.   As to claim 3, Abrams teaches, wherein said host program exposes said symbionts available on said host program to said network *(Fig. 13, pages 2-3, paragraphs [0019]-[000024]; page 8, paragraphs [0073]-[0077]).*

15.   As to claim 4, Abrams teaches, wherein replicates of said resource is connected together, to support a measure of communication among said replicates *(Figs. 14-15, pages 2-3, paragraphs [0019]-[000024]; page 9, paragraphs [0080]-[0087]).*

16.   As to claim 5, Abrams teaches, wherein said various replicates of said symbiont are connected together in a multiply connected ring *(Figs. 14-15, the ring 126; pages 2-3, paragraphs [0019]-[000024]; page 9, paragraphs [0080]-[0087]).*

17.   As to claim 7, Abrams teaches, wherein said threshold, l_{max}, of said symbiont, is lowered to increase the number of replicates according to a predetermined probabilistic measure *(Fig. 22).*

18.   As to claim 8, Abrams teaches, wherein said threshold, t, of symbionts encapsulating said replicate of said resource is less than said threshold, l_{max} of said symbiont *(Fig. 22).*

19.   As to claim 9, Abrams teaches, wherein said threshold, t, of symbiont encapsulating said replicate of said resource, evolves with time according to some probabilistic measure *(Fig. 22)*.

20.   As to claim 10, Abrams teaches, wherein said request is redirected to said replicate, encapsulating in a symbiont with least load serving said request *(Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141])*.

21.   As to claim 11, Abrams teaches, wherein said request is redirected to a replicate encapsulated in a symbiont closet to said host *(Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141])*.

22.   Claim 12 is corresponding system claim of claim 1; therefore, it is rejected under the same rationale as in claim 1.

23.   Claims 13-16 are similar limitations of claims 2-5; therefore, they are rejected under the same rationale as in claims 2-5.

24.   As to claim 20, Abrams teaches a method for arranging resources in a network of computers, said computers on said network comprising host programs, said host programs comprising symbionts, said syrnbionts encapsulating said resources, said method comprising the steps of:

a. connecting resources in the form of multiply ring *(Figs. 14-15);*

b. replicating a symbiont encapsulating a resource on a host program based on

predetermined birthing rules *(the encapsulation of an appshot 220 allows the on-*

demand system 140 to replicate an application and provide plurality of instances of the

same time application to be operated at substantially the same time utilizing a plurality

of subsets of the on-demand computational resources. The application allows the on-

demand system 140, among other things, to move the appshot 220 to another set of

compute resources such as another server, computer or machine, to duplicate the

appshot 220 to other servers, and to replace or upgrade an appshot 220; Figs. 13-15,

pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8,

paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119];

pages 15-16, paragraphs [0136]-[0141]);

c. joining replicate of said resource to said multiply connected ring *(Figs. 14-15)*; and

d. one of said symbionts encapsulating said resource, ceasing to exist from said

multiply connected ring based on predetermined death rules *(the encapsulated appshot*

220 allows the on-demand system 140 to put an application when operating as in

instance of an application into a form which allows the system to remove the instance of

the application from an idle server when the application instance associated with an

appshot 220 is not being used; Figs. 13-15, pages 2-3, paragraphs [0019]-[000024];

page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph

[0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141])

25.   Claims 21-24 are similar limitations of claims 2-5; therefore, they are rejected

under the same rationale as in claims 2-5.

26.   As to claim 27, Abrams teaches, wherein said step of replicating a symbiont

encapsulating a resource based on birthing rules is performed when any one of the

following conditions is satisfied:

a. the load on said symbiont is more than a threshold Imax, and the load on all

symbiont encapsulating said resource, is more than a threshold, t *(Figs. 13-15, pages 2-*

3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph

[0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-

16, paragraphs [0136]-[0141]); and

b. the load on said symbiont is more than the threshold, I_{max}, and said host

program has been redirected more than a predetermined number of times *(Figs. 13-15,*

pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8,

paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119];

pages 15-16, paragraphs [0136]-[0141]).

27.   Claims 28-30 have similar limitations of claims 7-9; therefore, they are rejected

under the same rationale as in claims 7-9.

28.   As to claim 31, Abrams teaches, further comprises the steps of: a. marking new

one of said symbionts encapsulating said new resource, as immortal *(Figs. 13-15,*

pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8,

paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119];

pages 15-16, paragraphs [0136]-[0141]);

29.   As to claim 32, Abrams teaches, wherein said step of one of said symbionts encapsulating said resource, ceasing to exist from said multiply connected ring based on predetermined death rules, comprises the steps of:

a. said symbionts checking their loads at regular time intervals *(Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141])*; and

b. said symbionts dying if their load is less than a threshold, I_{min} *(Figs. 13-15, pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141])*.

30.   As to claim 33, Abrams teaches, wherein said time intervals depend on time scale of natural fluctuations in the load on a symbiont *(Fig. 22)*.

31.   As to claim 34, Abrams teaches, wherein said threshold, I_{min}, depends on the number of said symbionts *(Fig. 22)*.

32.   As to claim 35, Abrams teaches, wherein said symbionts marked immortal never cease to exist *(Figs. 13-14, 22; pages 2-3, paragraphs [0019]-[000024]; page 6, paragraphs [0065]-[0068]; page 8, paragraph [0073] – page 10, paragraph [0087]; pages 13-14, paragraphs [0110]-[0119]; pages 15-16, paragraphs [0136]-[0141])*.

33.   Claim 36 is corresponding system claim of claim 20; therefore, it is rejected under the same rationale as in claim 20.

34.   Claims 37-40 have similar limitations of claims 21-24; therefore, they are rejected

under the same rationale as in claims 21-24.

35.   Claims 44-48 have similar limitations of claims 31-35; therefore, they are rejected

under the same rationale as in claims 31-35.

36.   Further references of interest are cited on Form PTO-892, which is an

attachment to this action.

Conclusion

37.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hai V. Nguyen whose telephone number is 571-272-

3901. The examiner can normally be reached on 6:00-3:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Hai V. Nguyen
Examiner
Art Unit 2142